

COLORADO RIVER RECOVERY PROGRAM  
FY 2002 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: 22K

I. Project Title: **Humpback chub population estimate in Desolation/Gray Canyon, Green River, Utah.**

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III. Project Summary:

The RIP recently identified recovery goals for the endangered humpback chub. Recovery goals are based in part on maintaining populations of humpback chub in several locations, among which is the Desolation/Gray canyon population on the Green River. Identifying, maintaining, and monitoring a population necessitates obtaining accurate population estimates.

Objectives:

1. To obtain a population estimate of late juvenile/adult humpback chub in Desolation/Gray Canyon.
2. To determine if a relationship exists between ISMP catch rates and population size.

Two sampling trips were conducted through Desolation/Gray canyons on June 1-8 and June 15-22 to make up the second of the three year population estimate. A third sampling trip was scheduled for June 29-July 6, but was canceled due to low flows. Trips are usually scheduled

to target flows below 8000 cubic feet per second (cfs) to maximize catch rates. This year flows during sampling ranged from 5600 to 1800 cfs. In an effort to avoid extremely low flows, trips in 2002 were scheduled two weeks earlier than 2001 trips. A total of 12 sites were sampled throughout the canyons including the four long-term trend sites at RM 185, 174.4, 160.4, and 145.7.

A total of 293 individual humpback chub were collected in Desolation/Gray canyons by trammel netting, electrofishing, hoop netting and minnow trapping. Trammel nets yielded the highest catch of humpback chub. Trammel net catch rates increased between trips, while electrofishing catch rates remained similar (not tested for significance). Average total length of chubs caught was 240.5 mm with a range of 71-409 mm. Six humpback chub were recaptured during the second trip that had been tagged during the first trip. Long term recaptures (from previous years) were observed during both trips.

#### IV. Study Schedule:

- a. Initial year: 2001
- b. Final year: 2003

#### V. Relationship to RIPRAP:

Green River Action Plan: Mainstem

V.B Conduct population estimate for humpback chub

V.B.1. Desolation/Gray

#### VI. Accomplishments of FY02 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Two sampling trips were conducted through Desolation/Gray canyons on June 1-8 and June 15-22. A third sampling trip was scheduled for June 29-July 6 but was not conducted. A total of 12 sites were sampled throughout the canyons including the four long-term trend sites at RM 185, 174.4, 160.4, and 145.7. The other sites were located at RM 202, 182, 174.2, 166.8, 158.7, 155, 153.5, and 147.5. Four "wild card" sites from previous ISMP monitoring were included within the twelve sites. In general, sampling occurred during the peak and descending limb of the hydrograph. Sampling had been scheduled during this time to take advantage of higher flows. In 2001, flows dropped rapidly and catch rates from the last trip were low. In 2002, we attempted to take advantage of the flows by moving the project forward two weeks. However, flows dropped more rapidly than 2001 and the third trip was canceled to avoid extreme damage that can be done to equipment (boats and motors) and additional safety risks involved with low water in Desolation and Gray canyons. Flows were 5600-4700 cfs during the first trip and 3170-1810 cfs during the second trip. The third trip would have occurred

during flows of 1250-1040 cfs (all flows determined by USGS gage #09315000, Green River at Green River gage).

Trammel nets were utilized to target the adult component of the Desolation/Gray humpback chub population. Past research indicates that trammel nets provide the greatest numbers of adult sized chubs and electrofishing is a better technique to collect juveniles. Electrofishing was conducted in attempt to maximize our captures. One pass of electrofishing was conducted throughout the study area (between sites where feasible) with more intensive sampling at each of the twelve sites. Six to eight trammel nets were set at each sampling location, depending on availability of habitat at each site. Trammel nets were fished at each site from late afternoon until midnight and again the next day during the pre-dawn and morning hours. Each net was checked at one and a half to two hour intervals and all chubs were removed and placed in a holding pen to avoid recapturing the same fish twice within a sample site. One night was spent at each of the twelve sites. In addition to electrofishing and trammel netting, hoop nets and minnow traps were set at each site as conditions allowed. One or two hoop nets and one to four minnow traps were set per site. Hoop nets and minnow traps were baited with cat food and set parallel to flow if any existed. Both the nets and traps were set in the afternoon after arrival at each site and checked in the morning prior to leaving.

A total of 259 humpback chub were collected in 1,598 trammel net sets during the two trips through Desolation/Gray canyons, yielding an overall catch rate of 0.127 fish/net hour (Table 1). Electrofishing effort in 2002 was twice that in 2001. Forty-two humpback chub were collected during electrofishing yielding a catch rate of 2.4 fish/shock hour. Electrofishing captured thirteen percent of all humpbacks collected. Captures of humpbacks between sites were low (2% of total humpbacks caught from all methods). Hoop nets and minnow traps set at each of the sampling sites collected nine humpbacks, six of which were juveniles.

Overall average total length of all humpbacks collected by all methods was 240.5 mm (Figure 1). Fifteen percent of the total humpback catch were subadults (< 200 mm TL). Of this fifteen percent, 7.8% were taggable (> 150 mm TL), and 7.2% were < 150 mm TL. Average total length of humpback chub caught in trammel nets was 252 mm with a range of 109-409 mm. Average total length of all humpbacks collected during electrofishing (n = 42) was 190 mm (range 82-359 mm). Humpbacks captured in hoop nets averaged a total length of 151 mm (n=9, range 71-246 mm).

Two humpbacks were recaptured within the same trip, five days apart. One of these fish moved 10 miles upstream while the other moved 13 miles downstream. Six chub were recaptured during the second trip that had been tagged during the first trip. Of these six fish, one moved downstream eight miles while the remaining five stayed within a mile of their original capture location. Eighteen total long term recaptures (fish PIT tagged in previous years) were captured in 2002.

The results presented in this report are a preliminary summary of the raw data. Following further verification and analysis of this data a population estimate will be generated.

Table 1. Summary of humpback chub catch by each method employed in Desolation/Gray canyon during 2002. Note: This table is a total of all humpback chub collected including fish that escaped during measurements. Numbers elsewhere in this document may differ since those that escaped or were captured more than once may not be included in other analyses (i.e. length frequency charts).

Method	Trip	Number	Effort (hours)	Mean CPUE (fish/hour)
Trammel Net	1	108	999.08	0.106
	2	151	1008.80	0.147
	1&2	259	2007.88	0.127
Electrofishing	1	23	9.16	3.07
	2	19	13.36	1.44
	1&2	42	22.52	2.40
Hoop Net / Minnow Trap	1	5	744	0.006
	2	4	696	0.005
	1&2	9	1440	0.006



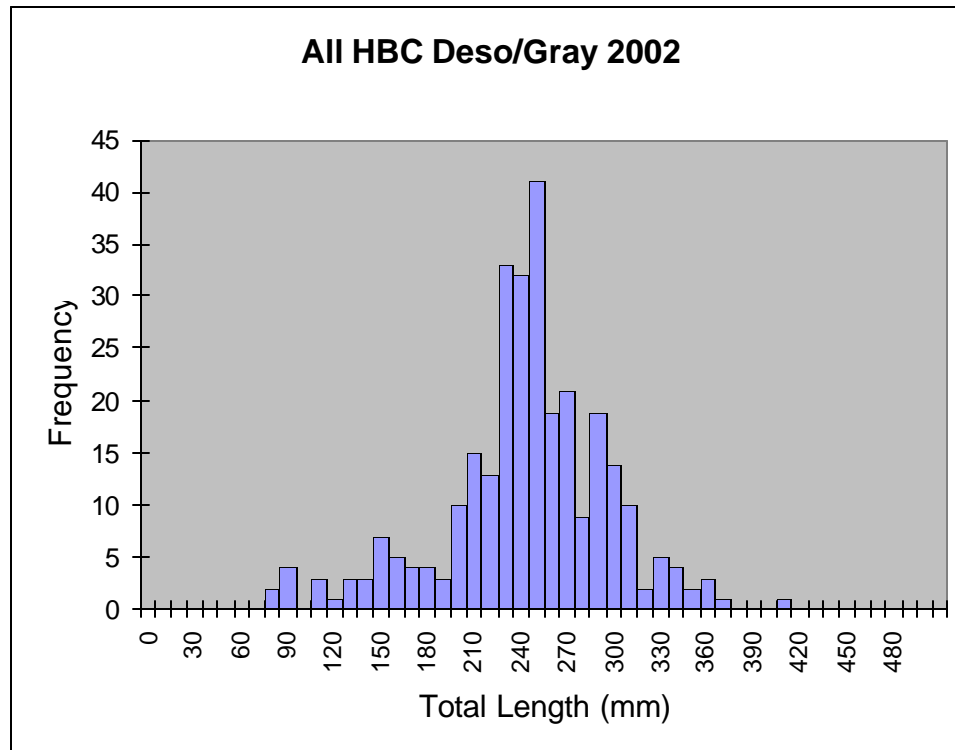


Figure 1. Length frequency distributions for all humpback chub collected in Desolation/Gray Canyons on the Green River during 2002.

#### VII. Recommendations:

- Sampling will occur in the fall in FY2003 to avoid higher water temperatures in the summer which tends to increase fish stress. Additionally, by catch of potentially spawning Colorado pikeminnow should be less at this time of year in Desolation and Gray canyons.
- Hoop net and minnow trap sampling will continue in FY2003 in an effort to increase overall captures and target smaller sized chubs.

VIII. Project Status: Ongoing. Second year of three for project completed.

IX. FY02 Budget:

A. Funds budgeted:	\$ 99,000
B. Funds expended/obligated:	\$ 79,256
C. Difference:	\$ 19,744
D. Percent FY2002 work completed:	80%
E. Recovery Program funds spent for publication charges:	\$ 0

X. Status of data submission:

Data will be entered on the computer and transferred to USFWS by January 15, 2003.

XI. Signed: J. Michael Hudson Date: 12/10/2002